



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/334.646	06/17/99	YAMAZAKI	S 0756-1984

MM12/1227
SIXBEY FRIEDMAN LEEDOM & FERGUSON PC
8180 GREENSBORO DRIVE SUITE 800
MCLEAN VA 22102

EXAMINER

HU.S

ART UNIT

PAPER NUMBER

2811

DATE MAILED:

12/27/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/334,646

Applicant(s)

Yamazaki et al.

Examiner

Shouxiang Hu

Group Art Unit

2811

☒ Responsive to communication(s) filed on Jun 17, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 35 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire three month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claim

☒ Claim(s) 1-57 is/are pending in the application

Of the above, claim(s) _____ is/are withdrawn from consideration

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-57 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 4

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

— SEE OFFICE ACTION ON THE FOLLOWING PAGES —

Art Unit: 2811

DETAILED ACTION

1. This application is a division of Application No. 08/938,310, filed on September 26, 1997, now U.S. Patent 5,959,313, which itself is a division of Application No. 08/513,090, filed on August 9, 1995, now U.S. Patent 5,731,613.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) a patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1, 6, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (5,608,232).

Yamazaki discloses (Figs. 1, 3, 8, 10, 11, 13 and 14) an electro-optical device comprising: at least two transistors provided on an insulating surface (12); a common gate wiring (107) provided on the insulating surface and connected with the two transistors at their gate electrodes, wherein at least the channel forming regions of the two transistors are provided in regions which can be regarded as being effectively monocrystalline silicon.

Although Yamazaki does not disclose that the two transistors are connected with each other in parallel, it is noted that it is well within the ordinary skill in the art to connect the two

Art Unit: 2811

transistors in parallel through a common gate wiring, a common source wiring and a common drain wiring, so that the unit structure's output can be increased and its output impedance can be reduced.

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to make Yamazaki's electro-optical device with at least two of the transistors being connected in parallel, so that the unit structure's power output would be increased and its output impedance would be reduced.

Regarding claim 6, Yamazaki discloses that the two transistors can be formed in two separate islands (Figs. 10 and 11).

Regarding claim 7, Yamazaki discloses that the two transistors can also be formed in a common island (Figs. 13 and 14).

Regarding claim 10, Yamazaki further discloses that the crystalline thin film silicon region contains nitrogen, carbon and oxygen at a concentration of $1 \times 10^{19} \text{ cm}^{-3}$ or less for each of them.

4. Claims 2-5, 8-9 and 11-57 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamazaki (5,608,232) in view of Takemura (5,581,092).

Yamazaki's disclosure is discussed as applied to claims 1, 6, 7 and 10 above. Yamazaki does not disclose that the transistors are used in a buffer circuit of a peripheral circuitry of around an active matrix circuit formed on the same insulating surface. However, Takemura teaches (Fig. 7) that it is desirable to use high mobility TFTs in the peripheral circuits around the active matrix

Art Unit: 2811

which is formed on the same insulating surface along with the high mobility TFTs. Furthermore, it is noted that it is old and well known in the art that the TFTs formed with monocrystalline silicon has much higher mobility than the TFTs formed with amorphous silicon; and, that the peripheral circuit for the active matrix display generally comprises a buffer amplifier with high power output and low output impedance.

It would therefore have been obvious to one of ordinary skill in the art at the time the invention was made to make Yamazaki's electro-optical device with at least two of the transistors being connected in parallel and incorporate it into the buffer amplifier in Takemura's peripheral circuit, so that high quality display would be achieved with the improved buffer amplifier power output and its output impedance.

Regarding claims 11, 14, 17, 20, 23, 26, 29, 32 and 35, Takemura's electro-optical device comprises a memory.

Regarding claims 12, 15, 18, 21, 24, 27, 30, 33 and 36, Takemura's electro-optical device comprises a decode.

Regarding claims 13, 16, 19, 22, 25, 28, 31, 34 and 37, Takemura's electro-optical device is a display system.

Regarding claims 38, 40, 42, 44, 46, 48, 50, 52, 54 and 56, the Raman spectrum width ratio of W/W_0 in Fig. 3 of Yamazaki is 2.0 or less.

Regarding claims 39, 41, 43, 45, 47, 49, 51, 53, 55 and 57, the Raman spectrum intensity ratio of I/I_0 in Fig. 3 of Yamazaki is about 0.8 or more.

Art Unit: 2811

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References B-C are cited as being related to the TFT structure.

6. Papers related to this application may be submitted to Technology center (TC) 2800 by facsimile transmission. Papers should be faxed to TC 2800 via the TC 2800 Fax center located in Crystal Plaza 4, room 4-C23. The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Group 2811 Fax Center number is (703) 308-7722 or 308-7724. The Group 2811 Fax Center is to be used only for papers related to Group 2811 applications.

Any inquiry concerning this communication or any earlier communication from the Examiner should be directed to ***Shouxiang Hu*** whose telephone number is **(703) 306-5729**. The Examiner is in the Office generally between the hours of 8:00AM to 5:30PM (Eastern Standard Time) Tuesday through Friday.

Any inquiry of a general nature or relating to the status of this application should be directed to the **Technology Center Receptionists** whose telephone number is **(703) 308-0956**.

Shouxiang Hu

December 14, 1999

Tom Thomas

Tom Thomas
Supervisor, Examiner
Technology Center 2800